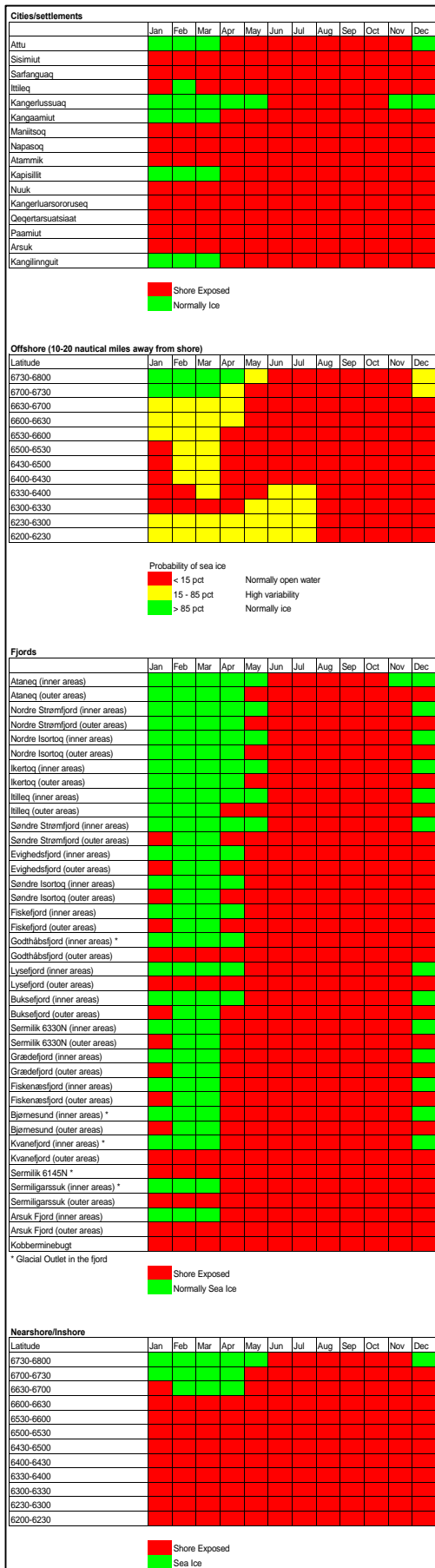


8.5 Fjord and Coastal Ice Freeze-up and Break-up



Isolated from the offshore conditions, sea ice forms locally throughout the winter in many fjords on the west coast of Greenland. This is especially the case with the northern fjords, which are covered with fast ice for several months. Freeze-up begins at the inner parts of the fjords in November or December, but may be significantly affected or reduced by very strong winds in the fjords throughout the winter.

The presence of a sea ice cover can protect the West Greenland shores and fjords from offshore oil spills. Although large local differences are to be expected, the southern shorelines are generally free of sea ice from spring until mid-winter. Towards the north the ice free periods generally persist from early summer until early winter.

On the basis of data from the literature, historical ice charts, satellite data, and local experience, it is possible to evaluate which shores are likely to be susceptible to oil exposure over time. The result of this evaluation is shown in Figure 8.15 and Figure 8.16. It is important to note, however, that the estimates of potential exposure periods are only evaluated roughly due to the high number of fjords and islands on the West Greenland coast. Thus, the maps and tables in this section will not necessarily reflect the actual conditions of oil exposure, i.e. in a very mild winter or during exceptional oceanographically conditions. In addition strong winds frequently occur along the shorelines, resulting in a localized break up of fast ice.

Figure 8.15. The West Greenland shore was divided into four subgroups. A study of the potential oil exposure was conducted for each of these:

- cities/settlements,
- offshore areas 10-20 nautical miles from the coast,
- major fjords,
- the near shore environment.

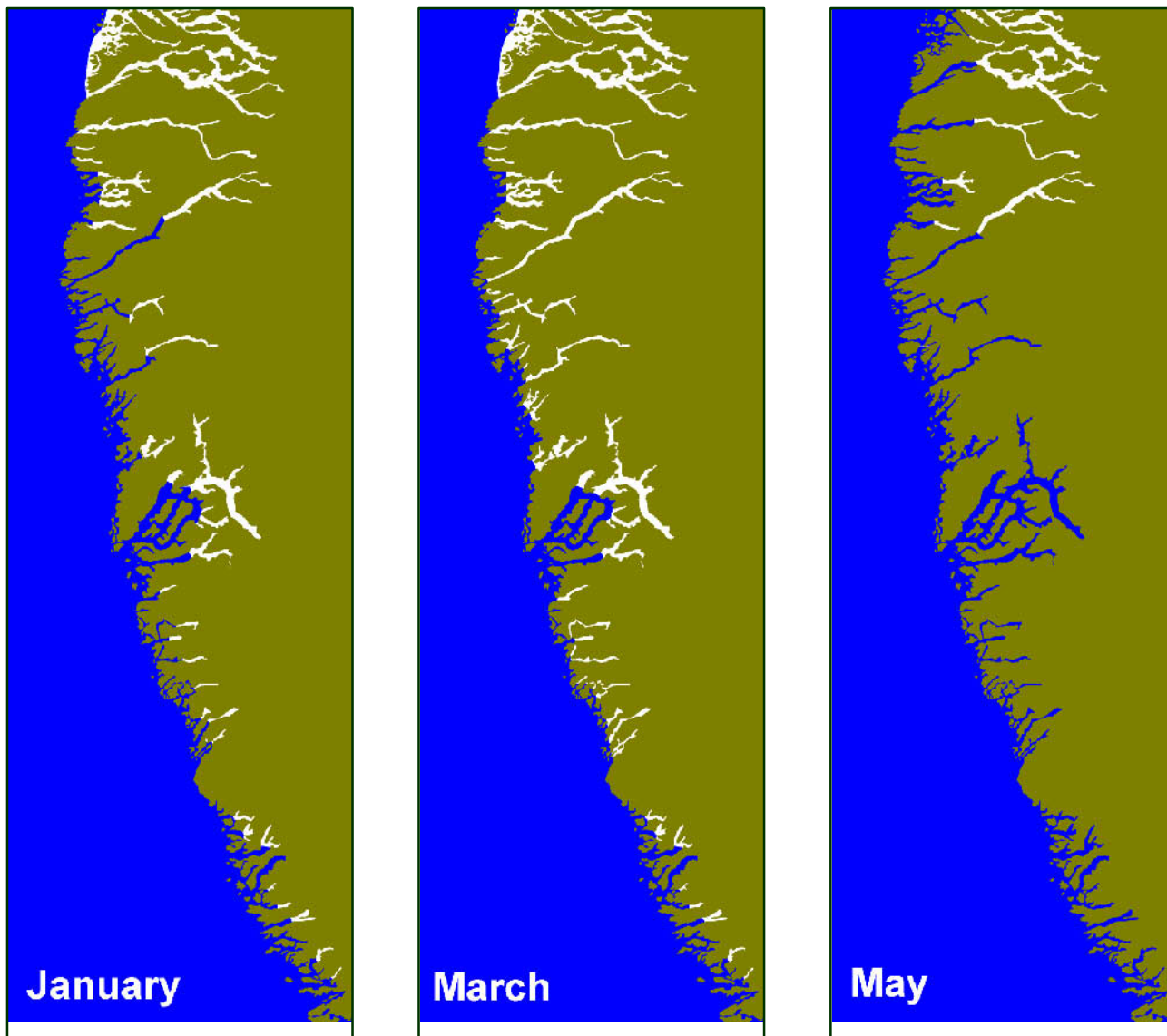


Figure 8.16. The exposed and sea ice covered shores for January, March and May.